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<110> Ladner, Robert Charles
Guterman, Sonia Kosow
Roberts, Bruce Lindsay
Markland, William
Arthur, Ley Charles
Rachel, Kent Baribault

<120> DIRECTED EVOLUTION OF NOVEL BINDING PROTEINS

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<141> 2001-06-29

<150> 08/993,776
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<150> 08/415,922
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<223> where xaa can be any naturally occurring amino acid

<220>
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<223> where xaa can be any naturally occurring amino acid

<400> 37

Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys
1 5 10 15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys
20 25

<210> 38
<211> 26
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<220>
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<220>
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<223> where xaa can be any naturally occurring amino acid

<220>
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<222> (21)..(25)
<223> where xaa can be any naturally occurring amino acid

<400> 38

Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys
1 5 10 15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys
20 25

<210> 39
<211> 27
<212> PRT
<213> Artificial sequence

<220>
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<220>
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<222> (2)..(7)
<223> where xaa can be any naturally occurring amino acid

<220>
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<222> (9)..(14)
<223> where xaa can be any naturally occurring amino acid

<220>
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<222> (17)..(19)
<223> where xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (21)..(26)
<223> where xaa can be any naturally occurring amino acid

<400> 39

Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Cys
1 5 10 15

Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys
20 25

<210> 40
<211> 14
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (5)..(10)
<223> where xaa can be any naturally occurring amino acid

<400> 40

His Asn Gly Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly Cys
1 5 10

<210> 41
<211> 14

<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (5)..(10)

<400> 41

Cys Asn Gly Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly His
1 5 10

<210> 42
<211> 15
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> misc_feature
<222> (4)..(4)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (6)..(11)
<223> where xaa can be any naturally occurring amino acid

<400> 42

His Gly Pro Xaa Met Xaa Xaa Xaa Xaa Xaa Xaa His Asn Gly Cys
1 5 10 15

<210> 43
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 43

Ser Asp Glu Ala Ser Gly Cys His Tyr Gly Val Leu Thr
1 5 10

<210> 44
<211> 58
<212> PRT
<213> Bos taurus

<400> 44

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala
1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 45
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 45

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 46
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 46

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Ser Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala

35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 47
<211> 58
<212> PRT
<213> Bos taurus

<400> 47

Arg Pro Asp Phe Cys Leu Gly Pro Pro Tyr Thr Gly Pro Cys Val Gly
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 48
<211> 58
<212> PRT
<213> Bos taurus

<400> 48

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 49
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 49

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 50
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 50

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Ile Phe Lys Arg Leu Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 51
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 51

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala

35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 52
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 52

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Phe Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 53
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 53

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Ile Ala
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Met Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 54
<211> 58
<212> PRT

<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 54

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Gly
1 5 10 15

Phe Ser Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 55
<211> 58
<212> PRT
<213> Dendroaspis polylepis polylepis

<400> 55

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Leu Phe Lys Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 56
<211> 58
<212> PRT
<213> Dendroaspis polylepis polylepis

<400> 56

Arg Pro Asp Phe Cys Leu Glu Pro Pro Asn Thr Gly Pro Cys Phe Ala
1 5 10 15

Ile Thr Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala

35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 57
<211> 58
<212> PRT
<213> Hemachatus hemachates

<400> 57

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Leu Phe Gln Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 58
<211> 58
<212> PRT
<213> Naja nivea

<400> 58

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Met Ala
1 5 10 15

Ile Ser Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala
35 40 45

Gly Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 59
<211> 58
<212> PRT
<213> Vipera russelli

<400> 59

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Lys Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 60
<211> 58
<212> PRT
<213> Caretta caretta

<400> 60

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Glu Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 61
<211> 58
<212> PRT
<213> Helix pomania

<400> 61

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Gly Tyr Ala Gly Cys Arg Ala Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 62
<211> 58

<212> PRT
<213> Dendroaspis angusticeps

<400> 62

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Glu Tyr Gly Gly Cys His Ala Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 63
<211> 58
<212> PRT
<213> Dendroaspis angusticeps

<400> 63

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Leu Tyr Gly Gly Cys Trp Ala Gln Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 64
<211> 58
<212> PRT
<213> Dendroaspis polylepis

<400> 64

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Arg Tyr Gly Gly Cys Leu Ala Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 65
<211> 58
<212> PRT
<213> Dendroaspis polylepis

<400> 65

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asp Tyr Gly Gly Cys His Ala Asp Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 66
<211> 58
<212> PRT
<213> Vipera ammodytes

<400> 66

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Leu Ala His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 67
<211> 58
<212> PRT
<213> Vipera ammodytes

<400> 67

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 68
<211> 58
<212> PRT
<213> Bungarus fasciatus

<400> 68

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asn Tyr Gly Gly Cys Glu Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 69
<211> 58
<212> PRT
<213> Anemonia sulcata

<400> 69

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Glu Gly Tyr Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 70
<211> 58
<212> PRT
<213> Homo sapiens

<400> 70

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Gln Tyr Gly Gly Cys Leu Gly Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 71
<211> 58
<212> PRT
<213> Homo sapiens

<400> 71

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe His Tyr Gly Gly Cys Trp Gly Gln Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 72
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 72

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe His Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 73
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 73

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 74
<211> 58
<212> PRT
<213> Bos taurus

<400> 74

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 75
<211> 58
<212> PRT
<213> Tachypleus tridentatus

<400> 75

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Pro Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Leu Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 76
<211> 58
<212> PRT
<213> Bombyx mori

<400> 76

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Lys Tyr Gly Gly Cys Trp Gly His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 77
<211> 58
<212> PRT
<213> Bos taurus

<400> 77

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Asn Tyr Gly Gly Cys Trp Gly Lys Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 78
<211> 58
<212> PRT
<213> Bos taurus

<400> 78

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Leu Gly His Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 79
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 79

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys Leu Gly Tyr Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 80
<211> 58
<212> PRT
<213> Bos taurus

<400> 80

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

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Phe Lys Tyr Gly Gly Cys Trp Ala Glu Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 81
<211> 58
<212> PRT
<213> Bos taurus

<400> 81

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                  10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Gly Tyr Gly Gly Cys Trp Gly Glu Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
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<210> 82
<211> 58
<212> PRT
<213> Bos taurus

<400> 82

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                  10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Glu Tyr Gly Gly Cys Trp Ala Asn Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 83
<211> 58
<212> PRT
<213> Bos taurus

<400> 83

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Val Tyr Gly Gly Cys His Gly Asp Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 84
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 84

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Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Met Tyr Gly Gly Cys Gln Gly Lys Gly Asn Asn Phe Lys Ser Ala
        35                  40                  45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
    50                  55
```

<210> 85
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 85

```
Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1               5                   10                  15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
            20                  25                  30

Phe Tyr Tyr Gly Gly Cys Trp Ala Lys Gly Asn Asn Phe Lys Ser Ala
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35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 86
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 86

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Met Tyr Gly Gly Cys Trp Gly Asp Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 87
<211> 58
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 87

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Val Ala
1 5 10 15

Met Phe Pro Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr
20 25 30

Phe Thr Tyr Gly Gly Cys His Gly Asn Gly Asn Asn Phe Lys Ser Ala
35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala
50 55

<210> 88
<211> 6
<212> PRT

<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (1)..(6)
<223> where x is an amino acid chosen from the set of [WMFYCIKDENHQ.], [PTAVG], or [SLR]

<400> 88

Xaa Xaa Xaa Xaa Xaa Xaa
1 5

<210> 89
<211> 24
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> MISC_FEATURE
<222> (1)..(2)
<223> where n can be any nucleotide

<220>
<221> MISC_FEATURE
<222> (7)..(8)
<223> where n can be any nucleotide

<220>
<221> MISC_FEATURE
<222> (10)..(11)
<223> where n can be any nucleotide

<220>
<221> MISC_FEATURE
<222> (13)..(14)
<223> where n can be any nucleotide

<220>
<221> MISC_FEATURE
<222> (16)..(17)
<223> where n can be any nucleotide

<220>
<221> MISC_FEATURE
<222> (22)..(23)
<223> where n can be any nucleotide

<400> 89

Asn Asn Thr Thr Gly Thr Asn Asn Thr Asn Asn Gly Asn Asn Gly Asn
1 5 10 15

Asn Thr Thr Gly Thr Asn Asn Thr
20

<210> 90
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotides

<400> 90
ccgtcgaatc cgc 13

<210> 91
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 91
ggcagtttag gcg 13

<210> 92
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 92
cgtaacctcg tcatta 16

<210> 93
<211> 16
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 93
ccgtaggtac ctacgg 16

<210> 94
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 94

cacggctatt acggt 15

<210> 95
<211> 12
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 95
accgtaatag cc 12

<210> 96
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 96
acttcctcat gaaaaagtct 20

<210> 97
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 97
acttcctcat gaaaaagtct 20

<210> 98
<211> 20
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 98
acttccagct gaaaaagtct 20

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<220>
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<210> 100
<211> 15
<212> DNA
<213> Artificial sequence

<220>
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<400> 100
cgagggagga ggatc 15

<210> 101
<211> 15
<212> DNA
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<220>
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<400> 101
cgaatcctcc tccct 15

<210> 102
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<212> DNA
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<220>
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<400> 102
ggtggcgagg gaggaggatc cgccgctgaa ggt 33

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ggcggatcct cctccctcgc c 21

<210> 104
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<220>
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gcgagggagg aggatccgcc 20

<210> 105

<211> 25
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<400> 105
tccctcggat cctcctccct cgccc 25

<210> 106
<211> 18
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<220>
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<400> 106

Arg Val Thr Val Tyr Thr Arg Arg Ser Val His Gly Val His Gly Arg
1 5 10 15

Met Gly

<210> 107
<211> 12
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<220>
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<220>
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<223> n is a, c, g, or t

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vytvntnnkv wg 12

<210> 108
<211> 27
<212> PRT
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<220>
<223> synthetic oligonucleotide

<400> 108

Cys Cys Thr Thr Gly Thr Gly Thr Gly Gly Cys Thr Ala Thr Gly Thr
1 5 10 15

Thr Cys Cys Ala Ala Cys Gly Cys Thr Ala Thr
20 25

<210> 109
<211> 27
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<220>
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<400> 109
ccttgcgtcg gtttcttctc acgctat 27

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ccttgcgtcg ctatcttccc acgctat 27

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ccttgcgtcg ctatcttcaa acgctct 27

<210> 114
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<220>
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ccttgcatcg ctttcttccc acgctat 27

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<400> 116
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<400> 117
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<210> 118
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<400> 118
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<210> 119
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<400> 119
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<210> 120
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<400> 120
atggctttgt tccaa 15

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<210> 122
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<400> 122

Cys Cys Cys Cys
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<210> 123
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<220>
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<400> 123

His His Met Cys
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<210> 124
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<220>
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<400> 124

His His His His
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<210> 125
<211> 4
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<400> 125

Cys Cys His His
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<210> 126
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<220>
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<400> 126

Cys Cys Cys His
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<210> 127
<211> 21
<212> PRT
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<220>
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<400> 127

Met Lys Gln Ser Thr Ile Ala Leu Ala Leu Leu Pro Leu Leu Phe Thr
1 5 10 15

Pro Val Thr Lys Ala
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<210> 128
<211> 131
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<220>
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<400> 128

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
115 120 125

Lys Ala Ser
130

<210> 129
<211> 64
<212> DNA
<213> Artificial sequence

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
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<222> (23)..(23)
<223> where n can be T or G with equal probability

<220>
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<222> (24)..(24)
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<223> where n can be T or G with equal probability

<220>
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<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<400> 129
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cgcc 64

<210> 130
<211> 70
<212> DNA
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<220>
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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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<220>
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(.26 T, .18 C, .26 A, and .30 G)

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<220>
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(.22 T, .16 C, .40 A, and .22 G)

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<223> where n can be T or G with equal probability

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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<223> where n can be T or G with equal probability

<400> 130
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cggccgcgcc 70

<210> 131
<211> 76
<212> DNA
<213> Artificial sequence

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

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<222> (23)..(23)
<223> where n can be T or G with equal probability

<220>
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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<220>
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(.22 T, .16 C, .40 A, and .22 G)

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(.22 T, .16 C, .40 A, and .22 G)

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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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<223> where n can be T or G with equal probability

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (40)..(40)
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(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (41)..(41)
<223> where n can be T or G with equal probability

<400> 131
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ccaaagcggc cgcgcc 76

<210> 132
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 132
ggcgcggccg ctttggccgg atc 23

<210> 133
<211> 58
<212> DNA
<213> Artificial sequence

<220>
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<220>

<221> misc_feature
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(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (30)..(30)
<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
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<223> where n can T or G with equal probability

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<222> (37)..(37)
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<210> 134
<211> 63
<212> DNA
<213> Artificial sequence

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (30)..(30)
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<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<222> (39)..(39)
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<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<223> where n can be T or G with equal probability

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cga 63

<210> 135
<211> 70
<212> DNA
<213> Artificial sequence

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
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<223> where n can T or G with equal probability

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(.26 T, .18 C, .26 A, and .30 G)

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(.22 T, .16 C, .40 A, and .22 G)

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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

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<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<223> where n can T or G with equal probability

<220>
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(.26 T, .18 C, .26 A, and .30 G)

<220>
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<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
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<222> (43)..(43)
<223> where n can T or G with equal probability

<220>
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<222> (44)..(44)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
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<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
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<222> (46)..(46)
<223> where n can T or G with equal probability

<220>
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<222> (47)..(47)
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(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
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(.22 T, .16 C, .40 A, and .22 G)

<220>
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<400> 135
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gcgcccgcga 70

<210> 136
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<220>
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<400> 136
tcgcgggcgc tcgagacaga a 21

<210> 137
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<220>
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<400> 137
gagctcagag gcttactatg aagaaatctc tggttcttaa ggctagc 47

<210> 138
<211> 49
<212> DNA
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<220>
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<400> 138
gagctctgga ggaaataaaa tgaagaaatc tctggttctt aaggctagc 49

<210> 139
<211> 41
<212> DNA
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<220>
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<400> 139
gatcctctag agtcggcttt acactttatg cttccggctc g 41

<210> 140
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<400> 140
cgagccggaa gcataaagtg taaagccgac tctagag 37

<210> 141
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<212> DNA
<213> Artificial sequence

<220>
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<400> 141
gatccactcc ccatcccccc gttgacaatt aatcat 36

<210> 142
<211> 34
<212> DNA
<213> Artificial sequence

<220>
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<400> 142
cgatgattaa ttgtcaacag ggggatgggg agtg 34

<210> 143
<211> 88
<212> DNA
<213> Artificial sequence

<220>
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<400> 143
gagctccatg ggagaaaata aaatgaaaca aagcacgatc gcactcttac cgttactgtt 60

taccctgtg acaaaagccc gtccggat 88

<210> 144
<211> 22
<212> PRT
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<220>
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<400> 144

Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
1 5 10 15

Thr Lys Ala Arg Pro Asp
20

<210> 145
<211> 210
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 145
ggatccggtg gcacttttcg gggaaatgtg cgcggaaccc ctatttgttt atttttctaa 60

atacattcaa atatgtatcc gctcatgaga caataaccct gataaatgct tcaataatat 120

tgaaaaagga agagtatgag tattcaacat ttccgtgtcg cccttattcc ctttttgcg 180

gcattttgcc ttcctgtttt tgctcatccg 210

<210> 146
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 146

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro
20 25

<210> 147
<211> 25
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 147
gtttcagcgg cgccagaata gaaag 25

<210> 148
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 148
tattctggcg cccgt 15

<210> 149
<211> 19
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 149
ccggacgggc gccagaata 19

<210> 150
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 150

Gly Ser Ser Ser Leu
1 5

<210> 151
<211> 13
<212> DNA
<213> Artificial sequence

<220>

<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (5)..(9)
<223> where n can be any nucleotide

<400> 151
ggccnnnnng gcc 13

<210> 152
<211> 536
<212> DNA
<213> Bos taurus

<400> 152
cggaccgtat ccaggcttta cactttatgc ttccggctcg tataattgga attgtgagcg 60

gataacaatt cctaggaggc tcactatgaa gaaatctctg gttcttaagg ctagcgttgc 120

tgtcgcgacc ctggtaccga tgctgtcttt tgctcgtccg gatttctgtc tcgagccgcc 180

atatactggg ccctgcaaag cgcgcatcat ccgttatttc tacaacgcta aagcaggcct 240

gtgccagacc tttgtatacg gtggttgccg tgctaagcgt aacaacttta aatcggccga 300

agattgcatg cgtacctgcg gtggcgccgc tgaaggtgat gatccggcca aagcggcctt 360

taactctctg caagcttctg ctaccgaata tatcggttac gcgtgggcca tggtggtggt 420

tatcgttggt gctaccatcg gtatcaaact gtttaagaaa tttacttcga aagcgtctta 480

atagtgaggt taccagtcta agcccgccta atgagcgggc ttttttttc ctgagg 536

<210> 153
<211> 134
<212> PRT
<213> Bos taurus

<220>
<221> MISC_FEATURE
<222> (132)..(132)
<223> where X is a stop encoded by TAA

<220>
<221> MISC_FEATURE
<222> (133)..(133)
<223> where X is a stop encoded by TGA

<220>
<221> MISC_FEATURE
<222> (134)..(134)
<223> where X is a stop encoded by TAG

<400> 153

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly
65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
115 120 125

Lys Ala Ser Xaa Xaa Xaa
130

<210> 154
<211> 176
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 154
ccgtccgtcg gaccgtatcc aggctttaca ctttatgctt ccggctcgta taatgtgtgg 60

aattgtgagc ggataacaat tcctagggcc gctccttcga aagcgtctta atagtgaggt 120

taccagtcta agcccgccta atgagcgggc ttttttttc ctgaggcagg tgagcg 176

<210> 155
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (5)..(5)

<223> where x is a stop encoded by TAA

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> where x is a stop encoded by TAG

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> where x is a stop encoded by TGA

<400> 155

Ser Lys Ala Ser Xaa Xaa Xaa
1 5

<210> 156
<211> 89
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 156
cgctcacctg cctcggaaaa aaaaaagccc gctcattagg cgggcttaga ctggtaacct 60

cactattaag acgctttcga aggagcggc 89

<210> 157
<211> 171
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 157
gcaccaacgc ctaggaggct cactatgaag aaatctctgg ttcttaaggc tagcgttgct 60

gtcgcgaccc tggtaccgat gctgtctttt gctcgtccgg atttctgtct cgagccgcca 120

tatactgggc cctgcaaagc gcgcatcatc cgtacttcga aagcggctgc g 171

<210> 158
<211> 45
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 158

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr
20 25 30

Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Thr Ser Lys
35 40 45

<210> 159
<211> 168
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 159
cctcgccctg gcgccgctga aggtgatgat ccggccaaag cggcctttaa ctctctgcaa 60

gcttctgcta ccgaatatat cggttacgcg tgggccatgg tggtggttat cgttggtgct 120

accatcggta tcaaactgtt taagaaattt acttcgaaag cgtcgggc 168

<210> 160
<211> 96
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 160
cgcagccgct ttcgaagtac ggatgatgcg cgctttacgg ggcccagtat atggcggctc 60

gagacagaaa tccggacgag caaaagacag catcgg 96

<210> 161
<211> 99
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 161
ccgtccgtcg gaccgtatcc aggctttaca ctttatgctt ccggctcgta taatgtgtgg 60

aattgtgagc ggataacaat tcctagggcc gctccttcg 99

<210> 162
<211> 99
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 162
gcaccaacgc ctaggaggct cactatgaag aaatctctgg ttcttaaggc tagcgttgct 60

gtcgcgaccc tggtaccgat gctgtctttt gctcgtccg 99

<210> 163
<211> 165
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 163
ccctgcacag cgcgcatcat ccgttatttc tacaacgcta aagcaggcct gtgccagacc 60

tttgtatacg gtggttgccg tgctaagcgt aacaacttta aatcggccga agattgcatg 120

cgtacctgcg gtggcgccgc tgaatttact tcgaaagcgt cgccg 165

<210> 164
<211> 46
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 164

Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln
1 5 10 15

Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser
20 25 30

Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Thr Ser Lys
35 40 45

<210> 165
<211> 50
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 165

Gly Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu
1 5 10 15

Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val
20 25 30

Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr
35 40 45

Ser Lys
50

<210> 166
<211> 97
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 166
cggcgacgct ttcgaagtaa attctgcggc gccaccgcag gtacgcatgc aatcttcggc 60

cgatttaaag ttgttacgct tagcacggca accaccg 97

<210> 167
<211> 93
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 167
ccctgcacag cgcgcatcat ccgttatttc tacaacgcta aagcaggcct gtgccagacc 60

tttgtatacg gtggttgccg tgctaagcgt aac 93

<210> 168
<211> 93
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 168
tcaagacgct ttcgaagtaa atttcttaaa cagtttgata ccgatggtag caccaacgat 60

aaccaccacc atggcccacg cgtaaccgat ata 93

<210> 169
<211> 100
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 169
cctcgccctg gcgccgctga aggtgatgat ccggccaaag cggcctttaa ctctctgcaa 60

gcttctgcta ccgaatatat cggttacgcg tgggccatgg 100

<210> 170
<211> 130
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (22)..(22)
<223> where n can be any amino acid with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (23)..(23)
<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n can be any amino acid with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (29)..(29)
<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (30)..(30)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (52)..(52)
<223> where n can be any amino acid with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (53)..(53)
<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (54)..(54)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature

<222> (58)..(58)
<223> where n can be any amino acid with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (59)..(59)
<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (60)..(60)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (73)..(73)
<223> where n can be any amino acid with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (74)..(74)
<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (75)..(75)
<223> where n can be T or G with equal probability

<220>
<221> misc_feature
<222> (115)..(115)
<223> where n can be any amino acid with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (116)..(116)
<223> where n can be any amino acid with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (117)..(117)
<223> where n can be T or G with equal probability

<400> 170
caccctgggc cctgcaaagc gnnnatcnnn cgttatttct acaacgctaa annnggtnnn 60

tgccagacct tcnnntacgg tggttgccgt gctaagcgta acaactttaa atctnnngag 120

gattgcatgc 130

<210> 171
<211> 41
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (8)..(8)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (18)..(18)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (23)..(23)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (37)..(37)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<400> 171

Gly Pro Cys Lys Ala Xaa Ile Xaa Arg Tyr Phe Tyr Asn Ala Lys Xaa
1 5 10 15

Gly Xaa Cys Gln Thr Phe Xaa Tyr Gly Gly Cys Arg Ala Lys Arg Asn
20 25 30

Asn Phe Lys Ser Xaa Glu Asp Cys Met
35 40

<210> 172
<211> 72

<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (22)..(22)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (23)..(23)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (29)..(29)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (30)..(30)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (52)..(52)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (53)..(53)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (54)..(54)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide with the following probabilities:

(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (59)..(59)
<223> where n can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (60)..(60)
<223> where n has an equal probability of being T or G

<400> 172
caccctgggc cctgcaaagc gnnnatcnnn cgttatttct acaacgctaa annnggtnnn 60

tgccagacct tc 72

<210> 173
<211> 78
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (22)..(22)
<223> where n is a nucleotide with equal probability of being C or A

<220>
<221> misc_feature
<222> (23)..(23)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (64)..(64)
<223> where n is a nucleotide with equal probability of being C or A

<220>
<221> misc_feature
<222> (65)..(65)
<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (66)..(66)

<223> where n is a nucleotide complementary to a nucleotide that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<400> 173
ccacccacgc atgcaatcct cnnncgattt aaagttgtta cgcttagcac ggcaaccacc 60

gtannngaag gtctggca 78

<210> 174
<211> 159
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 174
ctcgagccgc catatactgg gccctgcaaa gcggatatcc agcgttattt ctacaacgct 60

aaagagggcc tgtgccagac cttttcgtac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggg aagattgcat gcgtacctgc ggtggcgcc 159

<210> 175
<211> 53
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 175

Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala Asp Ile Gln Arg Tyr
1 5 10 15

Phe Tyr Asn Ala Lys Glu Gly Leu Cys Gln Thr Phe Ser Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Glu Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala
50

<210> 176
<211> 132
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>

<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of being C or A

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of being G or A

<220>
<221> misc_feature
<222> (27)..(27)
<223> where n has an equal probability of being G or A

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n has an equal probability of being T or A

<220>
<221> misc_feature
<222> (33)..(33)
<223> where n has an equal probability of being G or A

<220>
<221> misc_feature
<222> (34)..(34)
<223> where n has an equal probability of being G, C, or A

<220>
<221> misc_feature
<222> (35)..(35)
<223> where n has an equal probability of being G or T

<220>
<221> misc_feature
<222> (37)..(37)
<223> where n has an equal probability of being A or T

<220>
<221> misc_feature
<222> (57)..(57)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (59)..(59)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (66)..(66)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (67)..(67)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (68)..(68)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (69)..(69)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (70)..(70)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (71)..(71)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (120)..(120)
<223> where n can be any nucleotide, with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (121)..(121)
<223> where n can be any nucleotide, with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (122)..(122)
<223> where n has an equal probability of being T or G

<400> 176
cggcacgcgg gccctgcnna gcggatnnac agnnntnttt ctacaacgct aaagagnnnc 60

tgtgcnnnnn nttttcgtac ggtggttgcc gtgctaagcg taacaacttt aaatcgtggn 120

nngattgcat gc 132

<210> 177
<211> 41
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (4)..(4)
<223> where X is an amino acid encoded by equal probability of CAA, CGA, AAA or AGA

<220>
<221> MISC_FEATURE
<222> (7)..(7)
<223> where X is an amino acid encoded by equal probability of AAA, GAA, ATA or GTA

<220>
<221> MISC_FEATURE
<222> (9)..(9)
<223> where x is an amino acid encoded by a codon where the nucleotide in position 1 has an equal possibility of being A or G, the nucleotide in position 2 has an equal possiblility of being C, A, or G, and the nucleotide in position 3 can be T or G

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> where x is an amino acid encoded by a codon with equal possibility of being TTT or TAT

<220>
<221> MISC_FEATURE
<222> (17)..(17)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (20)..(21)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<220>
<221> MISC_FEATURE
<222> (38)..(38)
<223> where X is encoded by a codon where residue 1 can be (.26 T, .18 C, .26 A, and .30 G), residue 2 can be (.22 T, .16 C, .40 A, and .22 G), and residue 3 can be equal probability of T or G.

<400> 177

Gly Pro Cys Xaa Ala Asp Xaa Gln Xaa Xaa Phe Tyr Asn Ala Lys Glu
1 5 10 15

Xaa Leu Cys Xaa Xaa Phe Ser Tyr Gly Gly Cys Arg Ala Lys Arg Asn
20 25 30

Asn Phe Lys Ser Trp Xaa Asp Cys Met
35 40

<210> 178

<211> 61
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n is a nucleotide with equal chance being C or A

<220>
<221> misc_feature
<222> (20)..(20)
<223> where n is a nucleotide complementary to a nucleotide having the probabilities : .22 T, .16 C, .40 A, or .22 G

<220>
<221> misc_feature
<222> (21)..(21)
<223> where n is a nucleotide complementary to a nucleotide having the probabilities : .26 T, .18 C, .26A, or .30 G

<400> 178
cgtccagcgc atgcaatcnn nccacgattt aaagttgtta cgcttagcac ggcaaccacc 60

g 61

<210> 179
<211> 94
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of bein C or A

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of bein G or A

<220>
<221> misc_feature
<222> (27)..(27)
<223> where n has an equal probability of bein G or A

<220>
<221> misc_feature
<222> (28)..(28)
<223> where n has an equal probability of bein T or A

<220>
<221> misc_feature

<222> (33)..(33)
<223> where n has an equal probability of bein G or A

<220>
<221> misc_feature
<222> (34)..(34)
<223> where n has an equal probability of bein C, G, or A

<220>
<221> misc_feature
<222> (35)..(35)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (37)..(37)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (57)..(57)
<223> where n has an equal probability of bein T or A

<220>
<221> misc_feature
<222> (57)..(57)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (58)..(58)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (59)..(59)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (66)..(66)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (67)..(67)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (68)..(68)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (69)..(69)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (70)..(70)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (71)..(71)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (79)..(79)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<400> 179
cggcacgcgg gccctgcnna gcggatnnac agnnntnttt ctacaacgct aaagagnnnc 60

tgtgcnnnnn nttttcgtac ggtggttgcc gtgc 94

<210> 180
<211> 159
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 180
ctcgagccgc catatactgg gccctgcgag gcggatgttc agaatttttt ctacaacgct 60

aaagagtttc tgtgctctgc tttttcgtac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggc aggattgcat gcgtacctgc ggtggcggc 159

<210> 181
<211> 53
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 181

Leu Glu Pro Pro Tyr Thr Gly Pro Cys Glu Ala Asp Val Gln Asn Phe
1 5 10 15

Phe Tyr Asn Ala Lys Glu Phe Leu Cys Ser Ala Phe Ser Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala

50

<210> 182
<211> 117
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of being C or A

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (25)..(25)
<223> where n has an equal probability of being C or A

<220>
<221> misc_feature
<222> (42)..(42)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (43)..(43)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (44)..(44)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (55)..(55)
<223> where n has an equal probability of being A, G, or T

<220>
<221> misc_feature
<222> (56)..(56)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (72)..(72)

<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (78)..(78)
<223> where n has an equal probability of being A, C, G or T

<220>
<221> misc_feature
<222> (80)..(80)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (87)..(87)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (88)..(88)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (89)..(89)
<223> where n has an equal probability of being G, or T

<220>
<221> misc_feature
<222> (93)..(93)
<223> where n can be any nucleotide with the following probabilities:
(.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (94)..(94)
<223> where n can be any nucleotide with the following probabilities:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (95)..(95)
<223> where n has an equal probability of being G, or T

<400> 182
cgagcctgct cgagccgnng tatnnggggc cctgcgaggc gnnngttcag aattnnttct 60

acaacgccaa gnagtttntn tgctctnnnt ttnnntacgg tggttgccgt gctaagc 117

<210> 183
<211> 36
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>

<221> MISC_FEATURE
<222> (4)..(4)
<223> where X is an amino acid with encoded by AAG, ACG, CAG, CCG, GAG, or GCG with equal probability.

<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> where X is an amino acid with encoded by AAG, ACG, CAG, CCG, GAG, or GCG with equal probability.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> where X is an amino acid encoded by a codon where the nucleotide in position 1 has an equal possibility of being A or G, the nucleotide in position 2 has an equal possiblility of being C, A, or G, and the nucleotide in position 3 can be T or G

<220>
<221> MISC_FEATURE
<222> (16)..(16)
<223> where X is an amino acid encoded by TTT, TATK TGT, TAG, TGG, or TTG with equal probability.

<220>
<221> MISC_FEATURE
<222> (22)..(22)
<223> where X is an amino acid encoded by AAG, CAG, or GAG with equal probability

<220>
<221> MISC_FEATURE
<222> (24)..(24)
<223> where X is an amino acid encoded by TTT, TTG, ATT, ATG, CTT, CTG, GTT, or GTG with equal probability

<220>
<221> MISC_FEATURE
<222> (27)..(27)
<223> where X is an amino acid encoded by a codon where the nucleotide in position 1 has an equal possibility of being A or G, the nucleotide in position 2 has an equal possiblility of being C, A, or G, and the nucleotide in position 3 can be T or G

<220>
<221> MISC_FEATURE
<222> (29)..(29)
<223> where X is an amino acid encoded by a codon where the nucleotide in position 1 has an equal possibility of being A or G, the nucleotide in position 2 has an equal possiblility of being C, A, or G, and the nucleotide in position 3 can be T or G

<400> 183

Leu Glu Pro Xaa Tyr Xaa Gly Pro Cys Glu Ala Xaa Val Gln Asn Xaa
1 5 10 15

Phe Tyr Asn Ala Lys Xaa Phe Xaa Cys Ser Xaa Phe Xaa Tyr Gly Gly
20 25 30

Cys Arg Ala Lys
35

<210> 184
<211> 71
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (19)..(19)
<223> where n has an equal probability of being A or C

<220>
<221> misc_feature
<222> (24)..(24)
<223> where n has an equal probability of being A, C, or G

<220>
<221> misc_feature
<222> (25)..(25)
<223> where n has an equal probability of being A or C

<220>
<221> misc_feature
<222> (42)..(42)
<223> where n can be any nucleotide with the following probabilites:
(.26 T, .18 C, .26 A, and .30 G

<220>
<221> misc_feature
<222> (43)..(43)
<223> where n can be any nucleotide with the following probabilites:
(.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (44)..(44)
<223> where n has an equal probability of being T or G

<220>
<221> misc_feature
<222> (55)..(55)
<223> where n has an equal probability of being A, T or G

<220>
<221> misc_feature
<222> (56)..(56)
<223> where n has an equal probability of being T or G

<400> 184

cgagcctgct cgagccgnng tatnnggggc cctgcgaggc gnnngttcag aattnnttct 60

acaacgccaa g 71

<210> 185
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (31)..(31)
<223> where n has an equal possibility of being C or A

<220>
<221> misc_feature
<222> (32)..(32)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (33)..(33)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (37)..(37)
<223> where n has an equal possibility of being C or A

<220>
<221> misc_feature
<222> (38)..(38)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.22 T, .16 C, .40 A, and .22 G)

<220>
<221> misc_feature
<222> (39)..(39)
<223> where n is a nucleotide complimentary to a residue that can be any nucleotide with the following probabilities: (.26 T, .18 C, .26 A, and .30 G)

<220>
<221> misc_feature
<222> (46)..(46)
<223> where n has an equal possibility of being C or A

<220>
<221> misc_feature
<222> (48)..(48)
<223> where n has an equal possibility of being C, A, G, or T

<220>
<221> misc_feature
<222> (54)..(54)
<223> where n has an equal possibility of being T, G, or C

<400> 185
cggccagcgc ttagcacggc aaccaccgta nnnaaannna gagcananaa actncttggc 60

gttgtag 67

<210> 186
<211> 159
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 186
ctcgagccgg agtatcaggg gccctgcgag gcggctgttc agaattggtt ctacaacgct 60

aaacagttta tgtgctctct ttttcattac ggtggttgcc gtgctaagcg taacaacttt 120

aaatcgtggc aggattgcat gcgtacctgc ggtggcgcc 159

<210> 187
<211> 53
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 187

Leu Glu Pro Glu Tyr Gln Gly Pro Cys Glu Ala Ala Val Gln Asn Trp
1 5 10 15

Phe Tyr Asn Ala Lys Gln Phe Met Cys Ser Leu Phe His Tyr Gly Gly
20 25 30

Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Trp Gln Asp Cys Met Arg
35 40 45

Thr Cys Gly Gly Ala
50

<210> 188
<211> 582
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 188

gaattcgagc tcggtacccg gggatcctct agagtcggct ttacacttta tgcttccggc 60

tcgtataatg tgtggaattg tgagcgctca caattgagct cagaggctta ctatgaagaa 120

atctctggtt cttaaggcta gcgttgctgt cgcgaccctg gtacctatgt tgtccttcgc 180

tcgtccggat ttctgtctcg agccaccata cactgggccc tgcaaagcgc gcatcatccg 240

ctatttctac aatgctaaag caggcctgtg ccagaccttt gtatacggtg gttgccgtgc 300

taagcgtaac aactttaaat cggccgaaga ttgcatgcgt acctgcggtg gcgccgctga 360

aggtgatgat ccggccaagg cggccttcaa ttctctgcaa gcttctgcta ccgagtatat 420

tggttacgcg tgggccatgg tggtggttat cgttggtgct accatcggga tcaaactgtt 480

caagaagttt acttcgaagg cgtcttaatg atagggttac cagtctaagc ccgcctaatg 540

agcgggcttt ttttttatcg agacctgcag gcatgcaagc tt 582

<210> 189
<211> 582
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 189
gaattcgagc tcggtacccg gggatcctct agagtcggct ttacacttta tgcttccggc 60

tcgtataatg tgtggaattg tgagcgctca caattgagct cagaggctta ctatgaagaa 120

atctctggtt cttaaggcta gcgttgctgt cgcgaccctg gtacctatgt tgtccttcgc 180

tcgtccggat ttctgtctcg agccaccata cactgggccc tgcaaagcgc gcatcatccg 240

ctatttctac aatgctaaag caggcctgtg ccagaccttt gtatacggtg gttgccgtgc 300

taagcgtaac aactttaaat cggccgaaga ttgcatgcgt acctgcggtg gcgccgctga 360

aggtgatgat ccggccaagg cggccttcaa ttctctgcaa gcttctgcta ccgagtatat 420

tggttacgcg tgggccatgg tggtggttat cgttggtgct accatcggga tcaaactgtt 480

caagaagttt acttcgaagg cgtcttaatg atagggttac cagtctaagc ccgcctaatg 540

agcgggcttt ttttttatcg agacctgcag gcatgcaagc tt 582

<210> 190
<211> 554
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 190
ggatcctcta gagtcggctt tacactttat gcttccggct cgtataatgt gtggaattgt 60

gagcgctcac aattgagctc agaggcttac tatgaagaaa tctctggttc ttaaggctag 120

cgttgctgtc gcgaccctgg tacctatgtt gtccttcgct cgtccggatt tctgtctcga 180

gccaccatac actgggccct gcaaagcgcg catcatccgc tatttctaca atgctaaagc 240

aggcctgtgc cagacctttg tatacggtgg ttgccgtgct aagcgtaaca actttaaatc 300

ggccgaagat tgcatgcgta cctgcggtgg cgccgctgaa ggtgatgatc cggccaaggc 360

ggccttcaat tctctgcaag cttctgctac cgagtatatt ggttacgcgt gggccatggt 420

ggtggttatc gttggtgcta ccatcgggat caaactgttc aagaagttta cttcgaaggc 480

gtcttaatga tagggttacc agtctaagcc cgcctaatga cgggcttttt ttttatcgag 540

acctgcaggc atgc 554

<210> 191
<211> 134
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (132)..(132)
<223> where x is a stop encoded by TAA

<220>
<221> MISC_FEATURE
<222> (133)..(133)
<223> where x is a stop encoded by TGA

<220>
<221> MISC_FEATURE
<222> (134)..(134)
<223> where x is a stop encoded by TAG

<400> 191

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro
20 25 30

Tyr Thr Gly Pro Cys Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala
35 40 45

Lys Ala Gly Leu Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys
50 55 60

Arg Asn Asn Phe Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly

65 70 75 80

Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln
85 90 95

Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val
100 105 110

Ile Val Gly Ala Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser
115 120 125

Lys Ala Ser Xaa Xaa Xaa
130

<210> 192
<211> 577
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 192
ggatcctcta gagtcggctt tacactttat gcttccggct cgtataatgt gtggaattgt 60

gagcgctcac aattgagctc agaggcttac tatgaagaaa tctctggttc ttaaggctag 120

cgttgctgtc gcgaccctgg tacctatgtt gtccttcgct cgtccggatt tctgtctcga 180

gccaccatac actgggccct gcaaagcgcg catcatccgc tatttctaca atgctaaagc 240

aggcctgtgc cagacctttg tatacggtgg ttgccgtgct aagcgtaaca actttaaatc 300

ggccgaagat tgcatgcgta cctgcggtgg cgccgctgaa ggtgatgatc cggccaaggc 360

ggccttcaat tctctgcaag cttctgctac cgagtatatt ggttacgcgt gggccatggt 420

ggtggttatc gttggtgcta ccatcgggat caaactgttc aagaagttta cttcgaaggc 480

gtcttaatga tagggttacc agtctaagcc cgcctaatga cgggcttttt ttttatcgag 540

acctgcaggc atgcgacctg caggtcgacc ggcatgc 577

<210> 193
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<220>
<221> misc_feature
<222> (4)..(10)
<223> where n can be any nucleotide

<400> 193
ccannnnnnn tgg 13

<210> 194
<211> 525
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 194
ggctttacac tttatgcttc cggctcgtat aatgtgtgga attgtgagcg ctcacaattg 60

agctcagagg cttactatga agaaatctct ggttcttaag gctagcgttg ctgtcgcgac 120

cctggtacct atgttgtcct tcgctcgtcc ggatttctgt ctcgagccac catacactgg 180

gccctgcaaa gcgcgcatca tccgctattt ctacaatgct aaagcaggcc tgtgccagac 240

ctttgtatac ggtggttgcc gtgctaagcg taacaacttt aaatcggccg aagattgcat 300

gcgtacctgc ggtggcgccg ctgaaggtga tgatccggcc aaggcggcct tcaattctct 360

gcaagcttct gctaccgagt atattggtta cgcgtgggcc atggtggtgg ttatcgttgg 420

tgctaccatc gggatcaaac tgttcaagaa gtttacttcg aaggcgtctt aatgataggg 480

ttaccagtct aagcccgcct aatgagcggg ctttttttt atcga 525

<210> 195
<211> 68
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 195
ggctttacac tttatgcttc cggctcgtat aatgtgtgga attgtgagcg ctcacaattg 60

agctcagg 68

<210> 196
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 196
aggcttacta tgaagaaatc tctggttctt aaggctagcg ttgctgtcgc gaccctggta 60

cctatgt 67

<210> 197

<211> 70
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 197
tgtccttcgc tcgtccggat ttctgtctcg agccaccata cactgggccc tgcaaagcgc 60

gcatcatccg 70

<210> 198
<211> 65
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 198
cgagcgaagg acaacatagg taccagggtc gcgacagcaa cgctagcctt aagaaccaga 60

gattt 65

<210> 199
<211> 68
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 199
cttcatagta agcctcctga gctcaattgt gagcgctcac aattccacac attatacgag 60

ccggaagc 68

<210> 200
<211> 38
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 200
ccagtctaag cccgcctaat gagcgggctt ttttttta 38

<210> 201
<211> 29
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 201

tcgataaaaa aaaagcccgc tcattaggc 29

<210> 202
<211> 69
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 202
gggcttagac tggtaaccct atcattaaga cgccttcgaa gtaaacttct tgaacagttt 60

gatcccgat 69

<210> 203
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 203
aggcttacta tgaag 15

<210> 204
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 204
tgtccttcgc tcg 13

<210> 205
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 205
ctatttctac aatgc 15

<210> 206
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 206

aacaacttta aatcg 15

<210> 207
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 207
ccttcaattc tctgc 15

<210> 208
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 208
cgttggtgct acc 13

<210> 209
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 209
ccagtctaag ccc 13

<210> 210
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 210
ctatttctac aatgctaaag caggcctgtg ccagaccttt gtatacggtg gttgccgtgc 60

taagcgt 67

<210> 211
<211> 76
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 211

aacaacttta aatcggccga agattgcatg cgtacctgcg gtggcgccgc tgaaggtgat 60

gatccggcca aggcgg 76

<210> 212
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 212
ccttcaattc tctgcaagct tctgctaccg agtatattgg ttacgcgtgg gccatggtgg 60

tggttat 67

<210> 213
<211> 69
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 213
cgttggtgct accatcggga tcaaactgtt caagáagttt acttcgaagg cgtcttaatg 60

atagggtta 69

<210> 214
<211> 70
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 214
gcattgtaga aatagcggat gatgcgcgct ttgcagggcc cagtgtatgg tggctcgaga 60

cagaaatccg 70

<210> 215
<211> 67
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 215
cgatttaaag ttgttacgct tagcacggca accaccgtat acaaaggtct ggcacaggcc 60

tgcttta 67

<210> 216

<211> 76
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 216
gcagagaatt gaaggccgcc ttggccggat catcaccttc agcggcgcca ccgcaggtac 60

gcatgcaatc ttcggc 76

<210> 217
<211> 65
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 217
ggtagcacca acgataacca ccaccatggc ccacgcgtaa ccaatatact cggtagcaga 60

agctt 65

<210> 218
<211> 23
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 218

Met Lys Gln Ser Thr Ile Ala Leu Ala Leu Leu Pro Leu Leu Phe Thr
1 5 10 15

Pro Val Thr Lys Ala Arg Thr
20

<210> 219
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 219

Met Lys Ile Lys Thr Gly Ala Arg Ile Leu Ala Leu Ser Ala Leu Thr
1 5 10 15

Thr Met Met Phe Ser Ala Ser Ala Leu Ala Lys Ile
20 25

<210> 220
<211> 24
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic pepetide

<400> 220

Met Met Lys Arg Asn Ile Leu Ala Val Ile Val Pro Ala Leu Leu Val
1 5 10 15

Ala Gly Thr Ala Asn Ala Ala Glu
20

<210> 221
<211> 25
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 221

Met Ser Ile Gln His Phe Arg Val Ala Leu Ile Pro Phe Phe Ala Ala
1 5 10 15

Phe Cys Leu Pro Val Phe Ala His Pro
20 25

<210> 222
<211> 27
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 222

Met Met Ile Thr Leu Arg Lys Leu Pro Leu Ala Val Ala Val Ala Ala
1 5 10 15

Gly Val Met Ser Ala Gln Ala Met Ala Val Asp
20 25

<210> 223
<211> 22
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 223

Met Lys Ala Thr Lys Leu Val Leu Gly Ala Val Ile Leu Gly Ser Thr
1 5 10 15

Leu Leu Ala Gly Cys Ser
20

<210> 224
<211> 23
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 224

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

His Ser Ala Glu Thr Val Glu
20

<210> 225
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 225

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Arg Pro Asp
20

<210> 226
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 226

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp

20 25

<210> 227
<211> 26
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 227

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Arg Pro Asp
20 25

<210> 228
<211> 28
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 228

Met Lys Lys Ser Leu Val Leu Leu Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp
20 25

<210> 229
<211> 1302
<212> DNA
<213> M13

<400> 229
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctca ctccgctgaa 60

actgttgaaa gttgtttagc aaaaccccat acagaaaatt catttactaa cgtctggaaa 120

gacgacaaaa ctttagatcg ttacgctaac tatgagggtt gtctgtggaa tgctacaggc 180

gttgtagttt gtactggtga cgaaactcag tgttacggta catgggttcc tattgggctt 240

gctatccctg aaaatgaggg tggtggctct gagggtggcg gttctgaggg tggcggttct 300

gagggtggcg gtactaaacc tcctgagtac ggtgatacac ctattccggg ctatacttat 360

atcaaccctc tcgacggcac ttatccgcct ggtactgagc aaaaccccgc taatcctaat 420

ccttctcttg aggagtctca gcctcttaat actttcatgt ttcagaataa taggttccga 480

aataggcagg gggcattaac tgtttatacg ggcactgtta ctcaaggcac tgaccccgtt 540

aaaacttatt accagtacac tcctgtatca tcaaaagcca tgtatgacgc ttactggaac 600

ggtaaattca gagactgcgc tttccattct ggctttaatg aggatccatt cgtttgtgaa 660

tatcaaggcc aatcgtctga cctgcctcaa cctcctgtca atgctggcgg cggctctggt 720

ggtggttctg gtggcggctc tgagggtggt ggctctgagg gtggcggttc tgagggtggc 780

ggctctgagg gaggcggttc cggtggtggc tctggttccg gtgattttga ttatgaaaag 840

atggcaaacg ctaataaggg ggctatgacc gaaaatgccg atgaaaacgc gctacagtct 900

gacgctaaag gcaaacttga ttctgtcgct actgattacg gtgctgctat cgatggtttc 960

attggtgacg tttccggcct tgctaatggt aatggtgcta ctggtgattt tgctggctct 1020

aattcccaaa tggctcaagt cggtgacggt gataattcac ctttaatgaa taatttccgt 1080

caatatttac cttccctccc tcaatcggtt gaatgtcgcc cttttgtctt tagcgctggt 1140

aaaccatatg aattttctat tgattgtgac aaaataaact tattccgtgg tgtctttgcg 1200

tttctttttat atgttgccac ctttatgtat gtattttcta cgtttgctaa catactgcgt 1260

aataaggagt cttaatcatg ccagttcttt tgggtattcc gt 1302

<210> 230
<211> 66
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 230
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctca ctccgctgaa 60

actgtt 66

<210> 231
<211> 22
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 231

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

His Ser Ala Glu Thr Val
20

<210> 232
<211> 66

<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 232
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctgg cgccgctgaa 60

actgtt 66

<210> 233
<211> 21
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 233

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Glu Thr Val
20

<210> 234
<211> 1480
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 234
gtgaaaaaat tattattcgc aattccttta gttgttcctt tctattctgg cgcccgtccg 60

gatttctgtc tcgagcccat acactgggcc ctgcaaagcg cgcatcatcc gctatttcta 120

caatgctaaa gcaggcctgt gccagacctt tgtatacggt ggttgccgtg ctaagcgtaa 180

caactttaaa tcggccgaag attgcatgcg tacctgcggt ggcgccggcg ccgctgaaac 240

tgttgaaagt tgtttagcaa aaccccatac agaaaattca tttactaacg tctggaaaga 300

cgacaaaact ttagatcgtt acgctaacta tgagggttgt ctgtggaatg ctacaggcgt 360

tgtagtttgt actggtgacg aaactcagtg ttacggtaca tgggttccta ttgggcttgc 420

tatccctgaa aatgagggtg gtggctctga gggtggcggt tctgagggtg gcggttctga 480

gggtggcggt actaaacctc ctgagtacgg tgatacacct attccgggct atacttatat 540

caaccctctc gacggcactt atccgcctgg tactgagcaa aaccccgcta atcctaatcc 600

ttctcttgag gagtctcagc ctcttaatac tttcatgttt cagaataata ggttccgaaa 660

taggcagggg gcattaactg tttatacggg cactgttact caaggcactg accccgttaa 720

aacttattac cagtacactc ctgtatcatc aaaagccatg tatgacgctt actggaacgg 780

taaattcaga gactgcgctt tccattctgg ctttaatgag gatccattcg tttgtgaata 840

tcaaggccaa tcgtctgacc tgcctcaacc tcctgtcaat gctggcggcg gctctggtgg 900

tggttctggt ggcggctctg agggtggtgg ctctgagggt ggcggttctg agggtggcgg 960

ctctgaggga ggcggttccg gtggtggctc tggttccggt gattttgatt atgaaaagat 1020

ggcaaacgct aataaggggg ctatgaccga aaatgccgat gaaaacgcgc tacagtctga 1080

cgctaaaggc aaacttgatt ctgtcgctac tgattacggt gctgctatcg atggtttcat 1140

tggtgacgtt tccggccttg ctaatggtaa tggtgctact ggtgattttg ctggctctaa 1200

ttcccaaatg gctcaagtcg gtgacggtga taattcacct ttaatgaata atttccgtca 1260

atatttacct tccctccctc aatcggttga atgtcgccct tttgtcttta gcgctggtaa 1320

accatatgaa ttttctattg attgtgacaa aataaactta ttccgtggtg tctttgcgtt 1380

tcttttatat gttgccacct ttatgtatgt attttctacg tttgctaaca tactgcgtaa 1440

taaggagtct taatcatgcc agttcttttg ggtattccgt 1480

<210> 235
<211> 77
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (77)..(77)
<223> where X is a stop encoded by TAA

<400> 235

Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1 5 10 15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
20 25 30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
35 40 45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
50 55 60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Xaa
65 70 75

<210> 236
<211> 215
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 236
ggatccactc cccatccccc tgttgacaat taatcatcgg ctcgtataat gtgtggaatt 60

gtgagcgctc acaattgagc tctggaggaa ataaaatgaa gaaatctctg gttcttaagg 120

ctagcgttgc tgtcgcgacc ctggtaccta tgttgtcctt cgctcgtccg gatttctgtc 180

tcgagccacc atacactggg ccctgcaaag cgcgc 215

<210> 237
<211> 73
<212> PRT
<213> M13

<400> 237

Met Lys Lys Ser Leu Val Leu Lys Ala Ser Val Ala Val Ala Thr Leu
1 5 10 15

Val Pro Met Leu Ser Phe Ala Ala Glu Gly Asp Asp Pro Ala Lys Ala
20 25 30

Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr Glu Tyr Ile Gly Tyr Ala
35 40 45

Trp Ala Met Val Val Val Ile Val Gly Ala Thr Ile Gly Ile Lys Leu
50 55 60

Phe Lys Lys Phe Thr Ser Lys Ala Ser
65 70

<210> 238
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 238
ggcgagggag gaggatccgg atcctcc 27

<210> 239
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 239

Glu Gly Gly Gly Ser Gly Ser Ser
1 5

<210> 240
<211> 130
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>
<221> MISC_FEATURE
<222> (128)..(128)
<223> where X is a stop encoded by TAA

<220>
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<222> (129)..(129)
<223> where X is a stop encoded by TGA

<220>
<221> MISC_FEATURE
<222> (130)..(130)
<223> where X is a stop encoded by TAG

<400> 240

Met Lys Gln Ser Thr Ile Ala Leu Leu Pro Leu Leu Phe Thr Pro Val
1 5 10 15

Thr Lys Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro
20 25 30

Cys Lys Ala Glu Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu
35 40 45

Cys Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe
50 55 60

Lys Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Ala Glu Gly
65 70 75 80

Asp Asp Pro Ala Lys Ala Ala Phe Asn Ser Leu Gln Ala Ser Ala Thr
85 90 95

Glu Tyr Ile Gly Tyr Ala Trp Ala Met Val Val Val Ile Val Gly Ala
100 105 110

Thr Ile Gly Ile Lys Leu Phe Lys Lys Phe Thr Ser Lys Ala Ser Xaa
115 120 125

Xaa Xaa
130

<210> 241
<211> 12
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 241
ggaggaaata aa 12

<210> 242
<211> 543
<212> DNA
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 242
ggaggaaata aactgttgac aattaatcat cggctcgtat aatgtgtgga attgtgagcg 60

ctcacaattg agctccatgg gagaaaataa aatgaaacaa agcacgatcg cactcttacc 120

gttactgttt acccctgtga caaaagcccg tccggatttc tgtctcgagc caccatacac 180

tgggccctgc aaagcgcgca tcatccgcta tttctacaat gctaaagcag gcctgtgcca 240

gacctttgta tacggtggtt gccgtgctaa gcgtaacaac tttaaatcgg ccgaagattg 300

catgcgtacc tgcggtggcg ccgctgaagg tgatgatccg gccaaggcgg ccttcaattc 360

tctgcaagct tctgctaccg agtatattgg ttacgcgtgg gccatggtgg tggttatcgt 420

tggtgctacc atcgggatca aactgttcaa gaagtttact tcgaaggcgt cttaatgata 480

gggttaccag tctaagcccg cctaatgagc gggctttttt tttatcgaga cctgcaggtc 540

gac 543

<210> 243
<211> 485
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<220>

<221> misc_feature
<222> (485)..(485)
<223> Xaa can be any naturally occurring amino acid

<400> 243

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Met Lys Lys Leu Leu Phe Ala Ile Pro Leu Val Val Pro Phe Tyr Ser
1               5                  10                  15

Gly Ala Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys
            20                  25                  30

Lys Ala Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys
        35                  40                  45

Gln Thr Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys
    50                  55                  60

Ser Ala Glu Asp Cys Met Arg Thr Cys Gly Gly Ala Gly Ala Ala Glu
65                  70                  75                  80

Thr Val Glu Ser Cys Leu Ala Lys Pro His Thr Glu Asn Ser Phe Thr
                85                  90                  95

Asn Val Trp Lys Asp Asp Lys Thr Leu Asp Arg Tyr Ala Asn Tyr Glu
            100                 105                 110

Gly Cys Leu Trp Asn Ala Thr Gly Val Val Val Cys Thr Gly Asp Glu
        115                 120                 125

Thr Gln Cys Tyr Gly Thr Trp Val Pro Ile Gly Leu Ala Ile Pro Glu
    130                 135                 140

Asn Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser
145                 150                 155                 160

Glu Gly Gly Gly Thr Lys Pro Pro Glu Tyr Gly Asp Thr Pro Ile Pro
                165                 170                 175

Gly Tyr Thr Tyr Ile Asn Pro Leu Asp Gly Thr Tyr Pro Pro Gly Thr
            180                 185                 190

Glu Gln Asn Pro Ala Asn Pro Asn Pro Ser Leu Glu Glu Ser Gln Pro
        195                 200                 205

Leu Asn Thr Phe Met Phe Gln Asn Asn Arg Phe Arg Asn Arg Gln Gly
    210                 215                 220
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Ala Leu Thr Val Tyr Thr Gly Thr Val Thr Gln Gly Thr Asp Pro Val
225                 230                 235                 240

Lys Thr Tyr Tyr Gln Tyr Thr Pro Val Ser Ser Lys Ala Met Tyr Asp
                245                 250                 255

Ala Tyr Trp Asn Gly Lys Phe Arg Asp Cys Ala Phe His Ser Gly Phe
            260                 265                 270

Asn Glu Asp Pro Phe Val Cys Glu Tyr Gln Gly Gln Ser Ser Asp Leu
        275                 280                 285

Pro Gln Pro Pro Val Asn Ala Gly Gly Gly Ser Gly Gly Gly Ser Gly
    290                 295                 300

Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly
305                 310                 315                 320

Gly Ser Glu Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe
                325                 330                 335

Asp Tyr Glu Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn
            340                 345                 350

Ala Asp Glu Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser
        355                 360                 365

Val Ala Thr Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val
    370                 375                 380

Ser Gly Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser
385                 390                 395                 400

Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met
                405                 410                 415

Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys
            420                 425                 430

Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp
        435                 440                 445

Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr
    450                 455                 460

Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg
465                 470                 475                 480
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Asn Lys Glu Ser Xaa
485

<210> 244
<211> 8
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 244

Pro Cys Val Ala Met Phe Gln Arg
1 5

<210> 245
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 245

Pro Cys Val Gly Phe Phe Ser Arg Tyr
1 5

<210> 246
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 246

Pro Cys Val Gly Phe Phe Gln Arg Tyr
1 5

<210> 247
<211> 9
<212> PRT
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<220>
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<400> 247

Pro Cys Val Ala Met Phe Pro Arg Tyr
1 5

<210> 248
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<212> PRT
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<220>
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<400> 248

Pro Cys Val Ala Ile Phe Pro Arg Tyr
1 5

<210> 249
<211> 9
<212> PRT
<213> Artificial sequence

<220>
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<400> 249

Pro Cys Val Ala Ile Phe Lys Arg Ser
1 5

<210> 250
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 250

Pro Cys Ile Ala Phe Phe Pro Arg Tyr
1 5

<210> 251
<211> 9
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 251

Pro Cys Ile Ala Phe Phe Gln Arg Tyr
1 5

<210> 252
<211> 9
<212> PRT
<213> Artificial sequence

<220>

<223> synthetic peptide

<400> 252

Pro Cys Ile Ala Leu Phe Lys Arg Tyr
1 5

<210> 253
<211> 15
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic oligonucleotide

<400> 253

Ala Ala Ala Gly Cys Gly Cys Gly Cys Ala Thr Cys Ala Thr Cys
1 5 10 15

<210> 254
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 254

Lys Ala Arg Ile Ile
1 5

<210> 255
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 255

Met Gly Phe Ser Lys
1 5

<210> 256
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 256

Met Ala Leu Phe Lys
1 5

<210> 257
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 257

Phe Ala Ile Thr Pro
1 5

<210> 258
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 258

Met Ala Leu Phe Gln
1 5

<210> 259
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 259

Met Ala Ile Ser Pro
1 5

<210> 260
<211> 4
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 260

Leu Lys Lys Ser
1

<210> 261
<211> 5
<212> PRT
<213> Artificial sequence

<220>
<223> synthetic peptide

<400> 261

Leu Ser Ser Ser Gly
1 5